North Carolina
Geographic Information Coordinating Council

2004 Annual Report to the Governor and the North Carolina General Assembly

June 30, 2004

Submitted to:

Governor Michael F. Easley
and
The Joint Legislative Commission on Governmental Operations

NC Geographic Information Coordinating Council

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I. Implementing NC OneMap℠

The NC Geographic Information Coordinating Council (Article 76, §143-725 through 143-727) met four times in this reporting period: August 20, 2003, November 19, 2003, February 18, 2004, and May 20, 2004. Throughout this year the Council maintained a focus on the creation and operational structure of **NC OneMap**. It is a comprehensive statewide integrated data resource and Internet web mapping service. It achieves the Council's desired policy goal of local/state/federal government cooperation with resulting cost-efficiencies through coordination. Geographic data is developed once, and shared through an Internet map viewer that seeks out and combines data from numerous "partner" government servers across the state and "appears" as a seamless map to the user (visit www.nconemap.com). Although the Council has identified priority data categories that can be provided by various participants, every agency retains control of their data and chooses what they offer through **NC OneMap**.

The **NC OneMap** Implementation Plan adopted in August 2003 proposed that this structure be operational in North Carolina by 2005 so all citizens, government agencies, and emergency operations can take the availability of comprehensive geographic information for granted. Geographic information is used in the daily business processes of government to help us understand and communicate complex interrelationships. **NC OneMap** was named in the "State Homeland Security Strategy, 2004-2006" as a key resource for emergency response planning.

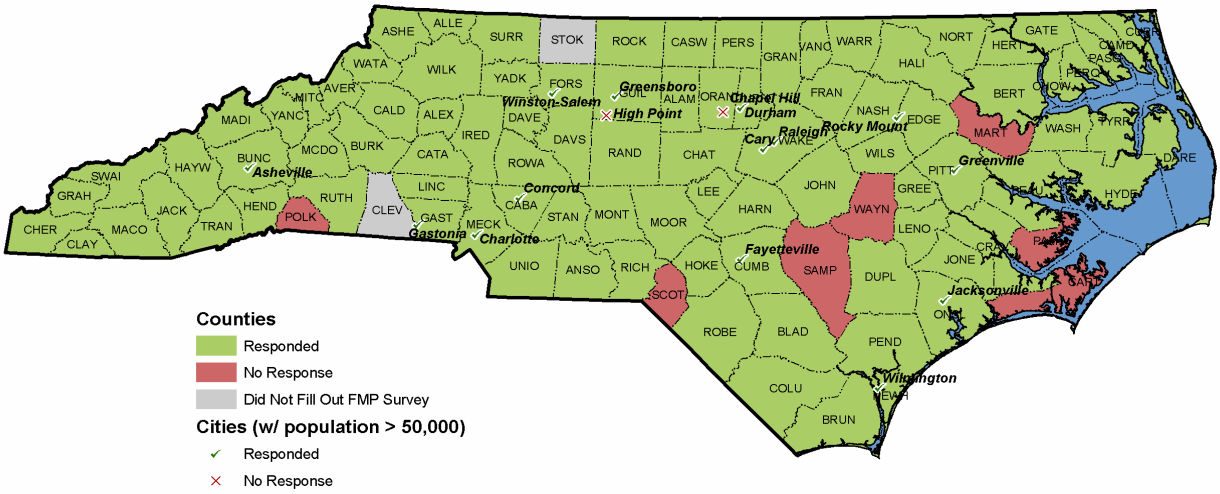
Building on the vision and essential characteristics outlined the previous year, the Council's **NC OneMap** Implementation Plan (Attachment A) specified 14 steps to achieve a successful launch. Steps included identification of initial critical data themes (e.g. roads, surface waters, municipal boundaries, aerial imagery) and the determination of basemap data that would be consistent across the state. The data inventory of local governments was the implementation step that ultimately refined the possible themes for **NC OneMap,** clearly identified data gaps across the state, and identified the earliest potential partners. Other essential steps included development of data content standards and resolution of policy issues relating to access and Homeland Security. Design and structure of the actual web mapping site and planning for uninterrupted 24/7 service were technical concerns reflected in several implementation steps. Securing funding for **NC OneMap** as a fully-maintained statewide data resource is on the implementation agenda. Outreach to potential local, state, and federal government partners is a key to success and actively continues through email campaigns, presentations at professional meetings, and efforts of the Council's standing committees.

II. Local Government Geographic Data Inventory

A comprehensive data inventory was conducted in October and targeted 100 counties and 141 cities. More than 90 counties and 90 municipalities completed the actual survey, and Council

staff, the Center for Geographic Information and Analysis, filled in known responses for most of the remaining counties from an earlier North Carolina Floodplain Mapping Program Survey (FMP) in order to have the most complete statewide picture (Attachment B).

The data revealed that local governments commonly used geographic information technology for mapping, planning and community development tasks. Most use the U.S. Survey foot as the unit of measure and the State Plane Coordinate system.



The most common data layers created by local governments responding include:

Orthophotography	98 %
Road Names	95 %
Zoning	85 %
Cadastral (parcels)	73 %
Street Centerlines	69 %
Fire Districts	70 %

Digital orthophotography, which is aerial photography that is rectified to the curvature of the earth and is used in a geographic information system, is one of the most important local government data resources. All but two counties have orthophotography available, although some have an aging product that is more than six years old. The capture of new digital orthophotography is related to local funding availability. The end result is significant timeframe variations across the state, even between neighboring counties. This locally acquired and maintained orthophotography is a key resource to **NC OneMap** and to numerous state agency applications from Floodplain Mapping to Emergency Management to the Multi-Hazard Threat program. One of the Council actions detailed in Section VII seeks to address this problem.

The data inventory results were compared to the proposed list of initial data layers to serve through **NC OneMap**: There was a strong correlation to existing local government capabilities. Almost 60 % of respondents, however, had not documented their data using the Council-approved standard. This documentation, called metadata, asks data originators to fully identify the data, its source, purpose and geographic characteristics, and access and use constraints.

Since it is estimated that North Carolina taxpayers have spent more than $162 million to create these data holdings, consistent data documentation allows potential users to "search and find" relevant data for a task. Participation in **NC OneMap** requires metadata preparation.

III. State Government Data Inventory

A state government geographic data inventory is in preparation and will be developed, released and completed prior to the November Council meeting. Staff are canvassing all state government departments to uncover geographic information use so the inventory can be directed to appropriate individuals. The survey will be conducted with the same on-line tool used for the local government inventory, but questions will be tailored to fit the state government enterprise.

The inventory results will provide a clear picture of the extent of geographic information data being captured and used by state agencies. Many local governments want to access state data resources that could be helpful in their communities. Appropriate state data sets will be candidates for inclusion in **NC OneMap.** As with the local government inventory, the resulting searchable database will be available on-line.

IV. 2004 Launch of NC OneMap

The data inventory revealed that 62 local governments had active Internet web sites with mapping capabilities and were the primary candidates for the initial launch of **NC OneMap**. The Council Chair sent letters inviting those cities and counties to extend their on-line mapping reach through the **NC OneMap** viewer. The Chair directed staff to enhance the existing "regional demonstration" web mapping application that was created in a 2003 collaboration and partnership with US Geological Survey as part of *The National Map*.

USGS staff assistance and computer resources in Sioux Falls, South Dakota, were made available to the **NC OneMap** "regional demonstration" that debuted in the summer of 2003 with 10 local government partners: Buncombe County, Cabarrus County, Henderson County, Johnston County, Mecklenburg County, Wake County, York County, South Carolina (which borders Charlotte), the City of Raleigh, and City of Salisbury. The official launch in June 2004 focused on enhancing the map viewer, connecting 33 local governments, adding an address locator for quick searches, and assisting local governments with metadata creation in order to fulfill the metadata requirement for participation.

A logo was created and Service Marked (a protection similar to a trade mark) with the Secretary of State. Web domain names were purchased, including NCOneMap.gov. A five-year strategic plan and budget is being prepared to identify long-term funding issues related to 24/7 availability, data acquisition to fill gaps across the state, and system acquisition, maintenance and staffing needs.

CGIA staff plan to continue to promote local government connections and assist agencies with metadata creation, as funds allow.

V. Standards

Data content standards are essential for data reliability and integration, especially in **NC OneMap**. The Council, through its Statewide Mapping Advisory Committee that includes all levels of government, evaluated the following standards in FY 2003-2004, which were officially adopted by the Council:

- NOAA technical memo, "Guidelines for Establishing GPS-Derived Ellipsoid Heights," which supports using global positioning systems for elevation data.

- "Geodetic Control Standard" for the *National Geospatial OneStop* initiative, with comment that the standard should publish coordinates in traditional degrees/minutes/ seconds instead of decimal degrees.

- "National Digital Elevation Program (NDEP) Guidelines," which establish good practices for geodesy and quality control of elevation data. [Note: Geodesy is the science of measuring the earth.]

Other standards, including the Cadastral (land ownership) data content standard, the Transportation data content standard, and the Digital Orthophotography data content standard are in committee review.

VI. Data Access Issues vs. Homeland Security Concerns

Public access, or restricting that access, to digital geographic data through **NC OneMap**, indeed any government-maintained Internet web site, is a state and national issue. The Council's GIS Technical Advisory Committee compiled a list of North Carolina statute-restricted data that are protected for confidentiality or security reasons (see Appendix C). There are few implications for this restricted data relative to **NC OneMap**. However, without statutory authority some local governments were making decisions at a technical level to remove certain data sets from their Internet web services because of concerns about terrorism, thus depriving public access.

The larger issue is to determine which data might be "useful" to a potential terrorist. One Council member and staff participated in the national Data Access Policy Subgroup of the Federal Geographic Data Committee's Homeland Security Working Group. This group constructed a matrix to help government data providers at the policy level follow a decision-tree that arrives at an informed and documented decision as to whether public access of a particular data set should be restricted. The decision-tree requires the data providers to consider the uniqueness of their data and whether it is available elsewhere, and the usefulness of data to a potential terrorist for selection of targets, planning or executing an attack. If the data are unique and not found anywhere else and are useful to a terrorist selecting a target, planning or executing an attack, there are two options. The questionable data could be removed from public access, or they could be altered/changed to retain security while maintaining their economic benefit for citizens.

The Federal Geographic Data Committee guidelines were based on the 2004 RAND National Defense Research Institute report (www.rand.org/publications/MG/MG142), "Mapping the Risks: Assessing the Homeland Security Implications of Publicly Available Geospatial Information." These draft guidelines will be finalized after pending review by the US Department of Homeland Security.

VII. Active Issues

In addition to the **NC OneMap** implementation plan, the Council pursued other major issues.

A. **High Resolution Digital Aerial Imagery**

Local governments are responsible for the capture of high resolution digital orthophotography (aerial imagery) for their jurisdictions. Because of funding issues, some counties are unable to re-fly this imagery in a timely fashion (every 4 years), and several economically distressed counties have never collected any digital photography. Local government data, such as land ownership; streets; zoning and planning; voting, school and emergency districts often rely on digital aerial imagery to provide the most accurate basemap for all other geographic information they manage. Although there is a complete 1998 statewide data set of digital color-infrared photography (used when better local photography does not exist), it is aging and is not useful for current state data needs relative to the production of Digital Flood Insurance Rate Maps (DFIRMs) and emergency response programs, such as the Multi-Hazard Threat Database.

Because of the patchwork of aging local government digital orthophotography, the Council adopted a "Statement of Direction for High Resolution Digital Aerial Imagery" (See Appendix D). This Statement commits the Council to exploit every "appropriate opportunity to share costs, negotiate in-kind services, or seek resources of member organizations, federal partners, and others for joint development of high resolution aerial imagery with local government." Council members and staff participated in regional discussions with local governments seeking to create joint agreements that will result in substantial local cost-savings by flying contiguous jurisdictions, not just a single county. The Council has publicized the free availability of the LIDAR elevation data (where it has been collected) from the Floodplain Mapping Program that reduces local government costs in processing new digital orthophotography. A formal business plan for orthophotography acquisition has been requested from the Statewide Mapping Advisory Committee of the Council. That committee initiated an annual survey to find out which counties actually scheduled photography flights this past winter. Orthophotography is flown during the "leaf-off" winter season, usually January-February-March in North Carolina.

A request for federal funding for acquisition of local government digital ortho-photography was sent to the North Carolina congressional delegation in a letter co-signed by the secretaries of Commerce (Jim Fain), Transportation (Lyndo Tippett) and Environment and Natural Resources (Bill Ross). This request is related to both filling the significant data gaps for the most economically disadvantaged counties as

well as creating a more robust **NC OneMap** that not only covers the entire state but provides critical data for floodplain mapping, emergency preparedness and response.

B. **Implement Provisions of Offensive Place-Names Legislation**

House Bill 483 (Session law 2003-211) provided for the abrogation of offensive geographic place-names and named the Council and Office of the Secretary of State as the responsible oversight agencies. The Council's Statewide Mapping Advisory Committee in collaboration with the Office of the Secretary of State adopted procedures for changing offensive or insulting place-names. The NC Board of Geographic Names, a subcommittee of the Statewide Mapping Advisory Committee was tasked with this responsibility. The Council adopted the procedures at its May 2004 meeting. (See Appendix E, Procedures for Changing Offensive or Insulting Geographical Place-names).

Section 2 of the law dealt specifically with a pejorative of "Negro." According to NC Board of Geographic Names research, five counties, at one point in time, had a feature or place listed with that offensive place-name. The County Manager and Chair of the Board of Commissioners in each county were contacted by letter with the actual site location, if known, and asked to follow procedures so the name, if it was still in use, could be officially changed. The NC Board of Geographic Names has collected all comments and will work with the GICC and the US Board of Geographic Names on recommended appropriate actions, if any.

C. **Clarification of NC G.S. §89-C Relative to Local Government GIS and Surveyors**

This issue revolves around the interpretation of the law relative to local government geographic information systems and whether professional surveyors must be used to gather data in certain operations that are usually performed by city or county employees, or even student interns. The Local Government Committee asked the NC Board of Engineers and Land Surveyors (NCBELS) to address specific local government concerns about the law, to present that information to the Council for wide distribution through the Internet and email, and to provide a better interpretation of the law so that local governments know in what circumstances they must use a surveyor to gather data. The presentation and distribution of materials occurred.

The Council asked NCBELS to consider amending the existing statute. Specifically, a national task force on the Model Law for Surveying recommended changes concerning the responsibilities of the professional surveyor with respect to the use of GIS products by governments. The National Council of Examiners for Engineering and Surveying (NCEES) adopted these recommendations in 2003 for their Model Law and many states were considering these recommendations. NCBELS said a committee would be appointed in spring 2004 to discuss the model law recommendations relative to GIS. The Council appointed an *ad hoc* committee to work on this issue with NCBELS. Proposals may be made in the 2005 legislative session.

D. **Statewide License for ESRI Software Products**

The most widely used geographic information system software is produced by Environmental Systems Research Institute (ESRI). Numerous state agencies, local governments, and universities use this product for generating and analyzing geographic information. The State Government GIS Users Group is pursuing the details of a statewide licensing strategy to allow state agencies to reduce costs by purchasing ESRI products and annual license maintenance from a single agreement. The Local Government Committee is participating in these discussions to potentially broaden the license to serve local government needs as well.

VII. Outreach

A. **GISLiveNC—November 19, 2003**

GIS Day is an international activity, now in its fifth year, which seeks to build awareness in the general public and in K-12 education about how geography and GIS technology work to solve problems. North Carolina, led by a GIS consortium that included the Department of Public Instruction, the Center for Geographic Information and Analysis (on behalf of the Council), NC State University, and numerous state agencies, local governments and teachers, held a full-day Internet-streamed live video conference. The 8-hour web-cast and video teleconference, **GISLiveNC**, included live presentations on NASA's Mars exploration project, various middle-school Mars projects and student projects with the State Climate Office. Numerous projects presented by government included crime analysis, disease transmission, school bus routing, and **NC OneMap**, as well as teacher-to-teacher segments on using GIS in the classroom. The program included an interactive link to a partnering school in Brazil, the Federal University of Parana.

B. **LIDAR Workshop—October 20, 2003**

The Council, through the Federal Interagency Committee, formed an *ad hoc* workgroup to explore the potential uses and applications of the LIDAR elevation data resource now being generated through the Floodplain Mapping Program. Accurate LIDAR data, which is captured by specially equipped airplanes, is essential data for determining elevation changes and therefore the 100-year and 500-year floodplains. The field-verified elevation accuracy is plus/minus 20 centimeters. LIDAR has been collected in 85 counties, to date, but plans are to complete the entire state as funds are available. The workgroup held its first organizational workshop to discuss quality assurance/quality control issues and potential applications for this important data resource. A follow-up workshop will be hosted by NC State University in August 2004 to show the technical realities of working with LIDAR data and showcase numerous applications.

C. **Professional Meetings and Events**

The Council and **NC OneMap** initiative were promoted in numerous venues. Staff exhibited **NC OneMap** at the NC League of Municipalities Fall 2003 conference. Staff also presented at meetings in North Carolina of the NC Property Mappers Association, NC Association of Environmental Professionals, NC Local Government

Information Systems Association, NC Arc/Info Users Group, NC Criminal Justice Information Network Board of Directors, Sandhills GIS Users Group, Orange County/Chapel Hill GIS Consortium, Winston-Salem IT Department, Transportation Planning Organizations for NC Council of Governments, and GIS Day as part of the GISLiveNC web-cast program.

On the national front, staff presented at the National States Geographic Information Council, Urban and Regional Information Systems Association, Geospatial OneStop, USGS headquarters, ArcInfo Users Group, and the International City/County Managers Association.

VIII. 2004-2005 Proposed Activities

A. NC OneMap Work Plan

- Attract 50 more local, state, and federal government connections.
- Enhance the web-service functionality for ease-of-use.
- Develop and showcase custom applications using the **NC OneMap** backbone.
- Conduct the state government data inventory.
- Create **NC OneMap** web pages to promote additional services, such as a statewide rolodex of GIS contacts, and an on-line data inventory system that can be refreshed and updated regularly by each data provider.
- Develop a web-based tool for governments to update their data inventory.
- Develop and adopt standards for digital orthophotography, transportation, surface waters, and cadastral (parcels) themes.
- Continue to assist local governments in data documentation (metadata).
- Resolve data access/restriction issues for local government data.
- Develop resources for 24/7 capability.
- Develop a plan and resources for disaster recovery.
- Implement the five-year funding plan to ensure the long-term success of **NC OneMap** as the key resource available to and shared by all government agencies to fulfill their distinct needs.

B. North Carolina GIS Conference, March 3-4, 2005

- Staff, in collaboration with the Council and 50 co-sponsors representing professional associations, universities, utilities and other interested groups, will plan and conduct the 9th biennial statewide conference. The 2005 theme is "Ideas, Innovation, Information." The conference will be held at the Benton Convention Center in Winston-Salem.
- **NC OneMap** will be featured in program sessions and workshops.
- Statewide issues facing the GIS community will be addressed in the program.

C. Collaborate with NC Board of Engineers and Land Surveyors

- Resolve issues on changes to recommend to GS 89-C based on local government GIS concerns and the Model Law adopted by the National Council of Examiners for Engineering and Surveying (NCEES**).**

Appendices

Appendix A: NC OneMap Implementation Plan (adopted August 20, 2003)

NC OneMap Implementation Plan

Purpose and Vision

The North Carolina Geographic Information Coordinating Council (GICC) adopted four priority areas at its February meeting to serve as a guide for Council activities in 2003. These four areas are: (1) develop a **common understanding** of North Carolina data resources; (2) prepare an ongoing **data inventory** for all geospatial data holdings across North Carolina; (3) develop **data content standards** for key data themes along with cost projections for maintaining those themes; and (4) enable more widespread use of geospatial data through better **access and distribution** of the data. The adoption of *NC OneMap* as a new vision for North Carolina was a key step in executing the GICC work plan. This implementation plan builds on the vision and characteristics for *NC OneMap* adopted in May by the GICC.

Specifically, North Carolina aims to have a statewide framework of geographic information operational by the year 2005. That framework will promote the maintenance of economic vitality in our communities, public health and safety, and the quality of life for all North Carolinians. Our citizens will take the availability of geographic information for granted. This vision will be realized through the leadership of the GICC in collaborative endeavors with numerous organizations.

The foundation of the vision is a comprehensive statewide geographic data resource, called *NC OneMap*. Data content, accuracy and scales of the resource will be determined through consensus and in recognition of the critical uses to which it is applied. *NC OneMap* will serve the basic information requirements for decision-making in the community, statewide, and in support of national priorities. *NC OneMap* will provide information to support the daily business processes of numerous organizations and their functions. While any user may have a unique view of the resource and it ostensibly may be physically distributed and maintained by a variety of data producers, it will appear to users as consolidated and integrated.

NC OneMap will include data that are current and accessible over the Internet to all statewide sectors including government agencies, utilities, private firms, schools, universities and individual citizens. Data on the Internet will be free to search, discover, view and acquire. It will be available 24 hours per day and seven days per week.

Standards and procedures will ensure that data contain no unnecessary redundancies or inconsistencies, and that data are adequately and uniformly documented. Security measures will be implemented to protect confidential/restricted data and to limit access to any user's esoteric, local data.

Innovative partnerships and cooperative agreements between municipal, county, regional, state, federal agencies, and others will be in place to ensure that the geographic information infrastructure endures and continues to meet user needs.

Implementation Steps

The GICC will accomplish the vision by performing several steps – some concurrent – leading to an initial capability by the end of 2004. This overall timeline can be accelerated if the GICC defines an initial capability more conservatively, taking advantage of some existing layers while work continues on the ultimate *NC OneMap* data content, concentrated on local data sources. This will be used as a basis for building a complete, statewide resource as partnerships and funding are secured. *NC OneMap* will start with those communities ready to partner and participate. The GICC will need to develop a strategy to assist those communities that do not have GIS data resources including Bertie, Gates, Hertford, Hyde, Madison, Mitchell, McDowell, and Polk Counties.

Here are the necessary steps to accomplish the initial release of *NC OneMap* in keeping with the set of characteristics approved by the GICC. Completion of these steps will establish a firm foundation for the growth of *NC OneMap* as a strategic North Carolina data resource.

1. Identify initial data themes to serve, including the seven framework data layers (i.e., aerial imagery [orthophotography], cadastral, surface waters, transportation, governmental units, geodetic control, and elevation).
2. Finalize data content standards for those themes.
3. Identify early partners, beyond the initial group that is participating in the National Map demonstration (i.e., Mecklenburg, Henderson, Wake, and Johnston).
4. Reach community data sharing agreements with those partners for those themes and other themes that the partner is willing to share.
5. Conduct outreach campaign to seek statewide participation and support.
6. Determine statewide data for achieving a complete basemap at a smaller scale with access to large scale, local data where agreements have been signed.
7. Evaluate policy issues related to serving data deemed sensitive by the Governor's Antiterrorism Task Force, US Department of Homeland Security, or other authorities.
8. Build and launch the web mapping site for *NC OneMap* with agreed upon data served that has been subjected to the above policy evaluation. [This step will build on the experimentation that has been part of the National Map demonstration web site.]
9. Develop a long-term plan to host *NC OneMap* in a true 24x7 facility.
10. Continue to develop and/or adopt data content standards for framework themes and any others that the Statewide Mapping Advisory Committee (SMAC) deems important for the partners and broad user community.
11. Derive the full potential set of data content for *NC OneMap* from the data inventory effort.
12. Develop a schedule for launch of data resources from additional communities.
13. Prepare and present cost projections to the GICC for making *NC OneMap* a statewide resource with wall-to-wall coverage that is maintainable.
14. Seek funding for full implementation of *NC OneMap* as a fully-maintained data resource.

Further steps have been defined with a set of tasks for each step, policy or other issues that are pertinent, a list of the relevant *NC OneMap* characteristics, and a timeframe for completing each step.

Free Access Versus Cost Recovery

CGIA is moving away from the cost recovery model for distribution of data in what has been previously called the Corporate Geographic Database. This previous form of data distribution never resulted in substantial resources for the agency (approximately 2% of annual revenues) and the goal during this calendar year is to move data access and distribution totally to the Internet. Users can view and download data as they see fit, but there will be a throttling mechanism to prohibit downloads of large statewide datasets because of bandwidth reasons. Those Internet users will be directed to a new File Transfer Protocol (FTP) server to download large volumes of data. In the remaining cases where users do not wish to download themselves, CGIA will perform the task for them and charge an hourly rate as a service – but all data will be accessible and downloadable from the Internet.

One of the key assumptions behind *NC OneMap* is that data available through this resource will be redistributable, without restriction. This means that if Chatham County data is accessible through *NC OneMap* and available for download, then any other organization can perform such a download free of charge and repackage it with other data and provide it to another organization who may or may not offer the repackaged data free of charge. As community data sharing agreements are developed, this assumption will be stated clearly.

Dependence on Cooperation

This is the most difficult part of the implementation plan for *NC OneMap* in some respects due to the difficult funding outlook that all public sector agencies face today. In parts of North Carolina and in certain essential functional areas, data are being developed and maintained to meet ongoing business processes. This is true of cadastral and aerial imagery (orthophotography) data in county GIS operations. Other framework themes such as surface waters and elevation do not have a consistent, statewide funding source for their collection and maintenance at map scales that are needed for many decision makers.

The community data sharing agreements serve as a means to generate partnerships among the data provider and user organizations across North Carolina. These are no-cost agreements where CGIA and local governments agree to share data free of charge without restriction. These agreements assume that CGIA and the local government will maintain the data that each provides under the agreement. Several of these agreements are in place and meeting the needs of each organization. *NC OneMap* will build on this concept.

The GICC will need to consider situations where one of the following statements is true: (1) data are simply not available from a particular county, municipality, state agency, or federal agency at a scale useful to most users; and (2) data are not being maintained on a regular basis from one of these partners. Since these situations do currently exist, the GICC needs to develop a strategy for seeking funds to ensure a complete statewide *NC OneMap* resource for critical data themes. In the meantime, *NC OneMap* can grow and develop in terms of content and statewide coverage.

Some communities are already contributing to *The National Map* demonstration site that has many similarities to what is envisioned for *NC OneMap*. These and other communities in North Carolina are ready to participate in *NC OneMap* and can provide the resources necessary to make their data available on an ongoing basis while other communities will not be able to support this effort completely without funding and/or technical support. Completion of the initial data inventory effort will be a first indicator of where there are current, available data resources and also where those data resources need to be developed.

Roles of CGIA and GICC Committees

The implementation of *NC OneMap* requires active, ongoing participation from each of the standing committees of the GICC. The proposed roles of CGIA and these committees are described below.

CGIA:

- Negotiate data sharing agreements with partners
- Prepare outreach materials and conduct outreach on behalf of the GICC
- Develop *NC OneMap* web site
- Pursue hosting of the site in a 24x7 facility

Statewide Mapping Advisory Committee (SMAC):

- Accelerate its work on review and establishing data content standards for framework themes
- Reach consensus on the use of these content standards in delivering data over *NC OneMap*

Local Government Committee (LGC):

- Encourage its constituents to respond to the data inventory effort so that the GICC has a clear and complete picture of data holdings, resources required to develop and maintain the data, how this data is made available, and any restrictions on access currently or projected due to homeland security concerns
- Present any critical issues to the GICC
- Participate in design of *NC OneMap* to meet local and regional needs beyond city and county borders
- Perform outreach efforts for local government agencies and others to foster participation and support of *NC OneMap*

State Government GIS Users Committee (SGUC):

- Encourage its constituents to respond to the data inventory effort so that the GICC has a clear and complete picture of state-level data holdings, maintenance issues such as staff and/or funds for keeping those data updated, and any restrictions on access currently or projected due to homeland security concerns

- Present any critical issues to the GICC
- Participate in design of *NC OneMap* to meet the needs of state agencies
- Perform outreach efforts for state government agencies and others to foster participation and support of *NC OneMap*

Federal Interagency Committee (FIC):

- Encourage its constituents to respond to the data inventory effort so that the GICC has a clear and complete picture of federal data holdings, maintenance issues such as staff or funds for keeping those data updated, and any current or projected restrictions on access because of homeland security directives
- Present any critical issues to the GICC
- Work with the GICC to identify funding opportunities at the federal level
- Participate in design of *NC OneMap* such that it meets the needs of FIC users
- Perform outreach efforts for federal government agencies and others to foster participation and support of *NC OneMap*

GIS Technical Advisory Committee (GIS TAC):

- Identify any technical issues that need to be addressed for *NC OneMap* such as integration of metadata and handling of historical versions of data layers
- Convene work groups as needed to evaluate those issues and resolve them (in cooperation with the LGC, FIC, SGUC, and SMAC)
- Based on the evaluation, present technical policy or other issues or concerns to the GICC

Resources

Data development and enhancement will be needed to fill holes, update those layers that have been difficult to maintain for various reasons, and establish new mechanisms to keep the data maintained over time. This calls for federal, state, and local investments in the data resource.

Grants to counties and municipalities would be helpful to foster more participation in *NC OneMap*. Grants could be focused on data investments as well as other resources that local governments need to enable their contribution to *NC OneMap*.

Some ongoing staff resources will be needed to devote to this effort at CGIA and elsewhere. The extent to which the *NC OneMap* effort goes above and beyond normal work duties of staff in state and local agencies is something that should be discussed and addressed where necessary.

Hardware and software investments will need to be made to ensure that the "characteristics" are achieved, such as true 24x7 operation. Ongoing investments will also need to be made for system maintenance as *NC OneMap* grows and technology changes.

Timeframe for Completion

The steps and the timeframe for each are summarized below.

	Step	Timeframe
1.	Identify initial data themes to serve.	Sep – Nov 2003
2.	Finalize data content standards for those themes.	Sep 2003 – Mar 2004
3.	Identify early partners.	Sep – Nov 2003
4.	Reach community data sharing agreements with partners.	Oct 2003 – Jan 2004 (ongoing)
5.	Conduct outreach campaign to seek statewide participation.	Sep 2003 – Aug 2004
6.	Determine statewide data for achieving complete basemap.	Dec 2003 – Feb 2004
7.	Evaluate policy issues related to serving sensitive data per Governor or US Homeland Security directives.	Sep 2003 – Feb 2004
8.	Build and launch the web mapping site for *NC OneMap*.	Jan – Jun 2004
9.	Develop long-term plan to host *NC OneMap* for 24x7 operations.	Jan – Jun 2004
10.	Derive the full potential set of data content for *NC OneMap*.	Jan – Mar 2004
11.	Continue to develop and/or adopt content standards.	Jan – Sep 2004
12.	Develop a schedule for launch beyond early partners.	Jun – Aug 2004
13.	Prepare and present cost projections for statewide *NC OneMap*.	Apr – Jun 2004
14.	Seek funding for full implementation of *NC OneMap.*	Jun – Dec 2004

Appendix B: Local Government Data Inventory Significant Findings

1. **Reached Target Audience.**
   A total of 192 organizations are represented in the responses. Of those responses, 160 organizations indicated that they have a hand in the creation, maintenance, or distribution of geospatial data. Clearly, the inventory met the objective to survey organizations that are most involved in local government geographic data production activities.

2. **Low Response to Documentation of Assets Using Geospatial Metadata Standard.**
   Although the statewide community is heavily involved in the production of geospatial data, a significant number of respondents said that they do not use or they do not know whether they use the metadata documentation standard adopted by the Geographic Information Coordinating Council (GICC) in 1996. Without appropriate documentation, data loses value. There must be accelerated training efforts in metadata creation and increased pressure applied to industry efforts to incorporate meta-making tools in their software.

3. **High Incidence of Internet Web Mapping Sites.**
   Sixty-five respondents (43%) said they have implemented web mapping sites on the Internet and are using information from their database. However, the vast majority (77%) still do not make their data available for download.

4. **Maintenance Cycle of Orthophotography is Variable and Unpredictable.**
   The creation and maintenance of orthophotography is widely variable by community. Further, the renewal cycle is unpredictable for a large number of respondents because they lack a steady stream of funds. Orthophotography is a primary framework (or base) layer and a critical asset for numerous local, state, and federal tasks and applications.

   Note: There was confusion on the question concerning the production of orthophotography. Many counties interpreted the question literally—does the county fly and produce its own photography? The question meant to find out whether the county obtains orthophotography, which also includes hiring a contractor to perform this task. A PowerPoint slide show that summarizes some survey findings offers two slides on this topic; one is the actual survey response, and a revised slide that shows the true extent of orthophotography production in North Carolina.

5. **Land Records Management Program (LRMP) Orthophotography Specifications.**
   Eighty percent of counties said they meet the state Land Records Management Program (LRMP) orthophotography specifications, however, 17% said they didn't know if they did. The uncertainty on this response could be due to the fact that an updated "draft" specification was in process and awaiting adoption by the GICC.

6. **Predominant Use of NC State Plane Coordinate System, US Survey Foot, NAD 83.**
   The local government use of the US Survey Foot as the unit of measure diverges from state-developed geographic databases which are in metric units, per direction of the GICC. This finding should prompt GICC review to address transfer and compatibility issues among NC OneMap stakeholders.

7. **Use of GPS by Local Governments.**
   Of the 69 respondents that use GPS receivers, 64 have receivers that meet or exceed "mapping"

grade requirements. The guidance offered to local governments through the GPS Standard adopted by the GICC has been effective and should continue.

8. **ESRI is the Dominant Line of GIS Software Used by Respondents.**
   In addition to ESRI, local governments use GIS software produced by Understanding Systems (11 respondents), MapInfo (8), Imagine (2), and Genamap (1). The GICC has a vendor-neutral approach in the promotion of geographic information technology and advocates the OpenGIS specifications.

9. **Almost 70% of Local Governments Centrally Manage their GIS.**
   About 30% of the respondents indicate that their organization follows a distributed model that splits data responsibility among different departments.

10. **Data Access, Charges, and Redistribution.**
    Almost half of the respondents do not restrict access to their data, and approximately another 20% indicate they sometimes restrict access. Almost 54% of the respondents charge for data distribution. Restrictions on redistribution of local GIS data were common (48%). There are numerous factors (financial, technical, policy) that are involved when each local government makes decisions about data access, distribution charges, and redistribution.

11. **Participation in NC OneMap.**
    Ten respondents indicated that they already participate in the NC OneMap demonstration site and 62 said they would like to do so. There is, however, a hesitation about direct data downloads through NC OneMap--only 32% indicated a willingness to do so. Free data download is a goal of NC OneMap, but it is not a requirement for participation.

12. **Common Local Government Themes.**
    Street centerlines, 69%; cadastral, 73%; and zoning, 85% were captured most often, but there are serious data gaps across many jurisdictions. The gaps will be assessed and a plan for funding creations of that data will be designed by the NC OneMap Implementation Team.

Appendix C: Report on Data Confidentiality and Security Restrictions Relative to Public Records and Sharing GIS Data

The GIS Technical Advisory Committee was asked to consider data that would have restricted or no public access within a geographic information system maintained by either the state or local governments. A review of the Public Records Law and specific General Statutes that relate to confidential records held by North Carolina Government entities has implications for data access and sharing, and the **NC OneMap** initiative.

I. Designated Confidential Records with GIS Database Implications

911 Database—Information is required to be confidential by agreement with telephone company, G.S. §132-1.5

Address Confidentiality Program—Office of the Attorney General charged with creating substitute address to protect confidentiality of addresses of relocated victims of domestic violence, sexual offense, or stalking; implications for local government public records (motor vehicle taxes, board of elections, property taxes, school assignment records), G.S.§15C-1

Agriculture information from individual farms operators for the purposes of animal health programs—Released only at discretion of State Veterinarian, G.S.§106-24.1

Archeological Resources—Released only at discretion of Department of Cultural Resources, G.S.§70-18

Biological Agents Registry—Released only to state and federal law enforcement agencies and Centers for Disease Control, G.S.§130A-479

Criminal Intelligence Information—Records compiled by public law enforcement agency to anticipate, prevent, or monitor possible violations of the law, G.S.§132-1.4

Hazardous Substances Trade Secrets—Commissioner of Labor and Fire Chief may hold confidential the names and contents of hazardous substances stored, manufactured, or used at a facility and any manufacturer data sheets if the information contains a trade secret, G.S.§95-197

Labor Statistics from Individual Employer—Unemployment, hours of labor, number and sex of employees, daily wages and conditions of employment statistics can not published, G.S.§95-5

Local Tax Records— Information about a taxpayer's income or receipts, with several authorized exceptions, G.S.§153A-148.1

Public Enterprise Billing Information—City and county utility services identification of individuals, G.S.§132-1.1

II. Security Restrictions with GIS Database Implications

Emergency Response Plans by any of these entities are confidential:

Local Boards of Education G.S.§115C-47

Community Colleges G.S.§132-1.6

University of North Carolina campuses G.S.§132-1.6

Public Hospitals G.S.§132-1.6

II. Security Restrictions with GIS Database Implications (continued)

Information technology systems, telecommunications networks, electronic security systems—public agency does not have to disclose security features, G.S.§132-6.1(c)

Operational—Confidential data, as defined in the General Statutes or federal law, can not be entered into or processed through any cost-sharing information resource center or state network until safeguards for the data's security are operational, G.S.§147-33.83(b)

Sensitive Public Security Information—Specific details of public security plans and arrangements, or the detailed plans and drawings of public buildings and infrastructure facility are confidential, G.S.§132-1.7

III. Medical Record Confidentiality with GIS Database Implications

Adult care homes, cardiac rehabilitation programs, nursing homes, G.S.§131;

Drug treatment and drug research, G.S.§90-113

Medicaid client information, G.S.§108A-54

Tracking childhood immunizations for diphtheria, tetanus, whooping cough, poliomyelitis, red measles and rubella, G.S.§130A-152;

Cancer Registry, G.S.§130A-212

IV. Public Records Requirements for all GIS Databases

Indexing. Electronic data-processing records in databases must be indexed by all public agencies following Division of Archives guidelines, G.S.§132-6.1. The Content Standard for Geospatial Metadata is an acceptable indexing configuration.

Exception for Geographic Information Systems. This qualified exception states that the GIS databases and data files developed by counties and cities are public records that should be available to the public through public access or other output devices, at reasonable cost. The county/city may require the public to agree in writing to not resell or use the data provided for trade or commercial purposes. However, news media, real estate trade associations or Multiple Listing Services, or licensed professionals are authorized to use the data without it being constituted as a resale for trade or commercial purposes, G.S.§132.10

Submitted to the Geographic Information Coordinating Council
by the GIS Technical Advisory Committee, 11/19/2003

Appendix D: Statement of Direction for High Resolution Digital Aerial Imagery (adopted August 20, 2003)

North Carolina Geographic Information Coordinating Council

Statement of Direction for High Resolution Digital Aerial Imagery

The North Carolina Geographic Information Coordinating Council (Council) directs the Statewide Mapping Advisory Committee (SMAC), in consultation with the Local Government Committee, to establish a statewide high resolution digital aerial imagery (orthophotography) program. Aerial imagery developed as part of the program will be consistent with the needs of local government and meet specifications of the North Carolina Land Records Management Program, the North Carolina Geodetic Survey, and the SMAC. Recommendations of the 2003 North Carolina Digital Aerial Imagery Task Force (June 2000) should be considered for planning and implementation of the program. The Council shall be advised, as appropriate, of program and policy implementation issues. The program will be consistent with the goals, characteristics, and implementation plans of *NC OneMap***.**

The Council acknowledges that digital aerial imagery (orthophotography) is a strategic geographic information asset and that the imagery derived for use in local government are needed in numerous business applications in regional, state and federal government programs. Examples of such applications include floodplain mapping, transportation highway mapping and planning, environment and natural resource management, economic development and recruitment, education and research, search and rescue, multi-hazard threat applications, and various other emergency readiness, response, and recovery operations.

The Council envisions the development of a robust program that ensures the availability of the most current aerial imagery (orthophotography) for the statewide community. Until a robust program is implemented and reliably funded, the Council directs the SMAC to exploit every appropriate short term opportunity to share costs, negotiate in-kind services or seek other resources of member organizations, federal partners, and others for joint development of high resolution aerial imagery with local governments.

Appendix E: Procedures for Changing Offensive or Insulting Geographical Place-names (adopted May 20, 2004)

I. Introduction

The North Carolina Geographic Information Coordinating Council (GICC) acknowledges that the Geographic Names Information System (GNIS), developed by the United State Geologic Survey in cooperation with the U.S. Board on Geographic Names (BGN), contains information about almost 2 million physical and cultural geographic features in the United States and its territories. The federally recognized name of each feature described in the database is identified, and references are made to a feature's location by State, county, and geographic coordinates. The GNIS is our nation's official repository of domestic geographic names information.

II. Procedure

A. Any individual or agency may apply to the North Carolina Geographic Information Coordinating Council (GICC) to change a currently used place-name on grounds the name is offensive or insulting to the State's people, history, and heritage. The GICC or any of its subunits may initiate the procedure for changing an offensive or insulting place-name with the United States Board of Geographic Names (USBGN).

B. Requests for name changes should be in the form of an application to the GICC, which shall include the reasons why the present name should not be used. This procedure may not be used to change a place-name which is that of a historic person or event.

C. Upon receipt of a request to change an offensive or insulting name, the GICC shall refer the matter to the North Carolina Board on Geographic Names (NCBGN), which shall investigate the background of the current name.

1. The NCBGN shall contact the county governing body in which the purported place-name is located in order to:
   a. notify the county that such application has been made,
   b. ascertain the county governing body's position, if any, on the place-name in question,
   c. inform the county governing body of the opportunity to be heard, per subparagraph E of this document.

2. After conducting its investigation and fact-finding, the NCBGN shall report its findings to the Statewide Mapping Advisory Committee, which shall review the NCBGN's findings regarding the application.

3. After reviewing the NCBGN's report, the Statewide Mapping Advisory Committee shall make a recommendation to the GICC regarding whether application by the GICC to the USBGN to change the subject name is appropriate, including in the recommendation whether or not the place-name is offensive or insulting to the State's people, history or heritage. The Statewide Mapping

Advisory Committee may seek input from the county governing body if it deems such input helpful or clarifying.

D. The GICC shall review the recommendation of the Statewide Mapping Advisory Committee. If the GICC finds that the subject place-name is offensive or insulting, then it shall notify the governing body of the county where the offensive or insulting place-name exists that the GICC intends to make application to the USBGN to change the place-name and shall request that the county governing body suggest a replacement name.

E. The county's governing body shall have no less than 90 days from receipt of notification from the GICC in which to respond. The GICC shall not take action to affect the change of the offensive or insulting place-name before it has reviewed the county's response or expiration of the 90 day period, whichever is sooner.

F. The GICC shall consider the response of the county governing body, if made within the appropriate time limit, and shall consider resolutions, if any, passed by the county's governing body regarding the change of the subject name.

G. After consideration of all properly submitted documentation, if the GICC determines by a vote of the Council that application to the USBGN to change the place-name is appropriate, then it shall apply to the USBGN to change the offensive place-name.

H. If the county's recommended replacement name is not deemed to be offensive or insulting by vote of the Council, then the Council shall make application to the U.S. Board of Geographic Names to change the offensive place-name to the name provided by the county governing body. If the county governing body fails to provide a replacement name within the specified time, or the provided name is deemed to be offensive or insulting by vote of the Council, then the Council shall make the application to change the offensive place-name to a name chosen within its discretion.

I. If the USBGN changes the offensive place-name, then the GICC shall notify the governing body of the county of that change within thirty (30) days of receiving notification of it.

Appendix F: 2004 Geographic Information Coordinating Council Members

2004 Member	Title and Organization	Appointing Authority
Chair, Dempsey Benton 1601 Mail Service Center Raleigh, NC 27699-1601	Chief Deputy *Environment and Natural Resources* 919/715-0183	Governor's Appointment
C. Ronald Aycock PO Box 1488 Raleigh, NC 27602-1488	Executive Director *NC Assoc. of County Commissioners* 919/715-2893	Executive Office *Designee—Rebecca Troutman* *919/733-1065*
George Bakolia 4101 Mail Service Center Raleigh, NC 27699-4101	State Chief Information Officer *Information Technology Services* 919/981-2680	Executive Office *Designee—Michael Fenton* *919/981-5520*
Bryan Beatty 4701 Mail Service Center Raleigh, NC 27699-4701	Secretary *Crime Control and Public Safety* 919/733-2126	Executive Office
Bob Brinson 2020 Yonkers Road Raleigh, NC 27604	Director CJIN *Correction* 919/716-3500	Governor's Appointment
Dr. Molly Broad PO Box 2688 Chapel Hill, NC 27515-2688	President *UNC-Office of the President*	Executive Office *Designee—Dr. Hugh Devine* *NCSU 919/515-3439*
Britt Cobb 2 W. Edenton Street Raleigh, NC 27611	Commissioner of Agriculture *Agriculture and Consumer Services* 919/733-7125	Executive Office
Jean Crews-Klein 4021 Carya Drive Raleigh, NC 27610	Vice Pres. Business & Natural Resources *NC Rural Economic Development Center* 919/250-4314	NC Senate
Terry Ellis PO Box 1373 Smithfield, NC 27577	GIS Technology Director *Johnston County Government* 919/989-5147	NC House of Representatives
Dianne Enright 1908 Mail Service Center Raleigh, NC 27699-1908	Geographic Analysis Unit Mgr. *State Center for Health Statistics* 919/715-4473	Appointed by GICC Chair *Chair, State Government GIS Users Committee*
Jim Fain 4301 Mail Service Center Raleigh, NC 27699-4301	Secretary *Commerce* 919/733-3449	Executive Office *Designee—John Correllus* *919/715-2358*

2004 Member	Title and Organization	Appointing Authority
Thomas Gray PO Box 1000 Manteo, NC 27954	IT Director *Dare County* 252/475-5840	NC Senate
Ellis Hankins PO Box 3069 Raleigh, NC 27602	Executive Director *NC League of Municipalities* 919/715-4000	Executive Office *Designee—Dr. Lee Mandell* *919/715-3933*
Jay Heavner PO Box 1578 Gastonia, NC 28053	Director of Revenue *Gaston County Tax Office* 704/810-5840	NC House of Representatives
Kevin Higgins 6201 Fairview Road, #400 Charlotte, NC 28210	Project Engineer *Watershed Concepts* 704/643-0108	NC House of Representatives
Bill Holman 1651 Mail Service Center Raleigh, NC 27699-1651	Executive Director *Clean Water Management Trust Fund* 919/716-0056	Governor's Appointment *(At Large State Agency)*
Carmen Hooker Odom 2001 Mail Service Center Raleigh, NC 27699-2001	Secretary *Health and Human Services* 919/733-4534	Executive Office *Designee—Don Allen* *919/855-3001*
Susan Johnson 600 E. Fourth Street 9th Fl. Charlotte, NC 28202	Key Business Executive *City of Charlotte* 704/336-6252	Governor's Appointment *(Municipal Government)*
Martin Lancaster 5001 Mail Service Center Raleigh, NC 27699-5001	President *NC Community College System* 919/807-7100	Executive Office *Designee—Tim Brewer* *919/807-6969*
Kelly Laughton 200 N. Grove St., #386 Hendersonville, NC 28792	IT Director *Henderson County* 828/698-5150	Local Government Committee Chair, elected
Timothy Lesser 100 E. First Street, Suite 520 Winston-Salem, NC 27102	Senior GIS Analyst *City of Winston-Salem Information Sys* 336/747-7082	NC Senate
Elaine F. Marshall PO Box 29622 Raleigh, NC 27626-0622	Secretary of State *Office of Secretary of State* 919/807-2008	Executive Office
David McCoy 20320 Mail Service Center Raleigh, NC 27699-0320	State Budget Officer *Office of State Budget and Management* 919/733-7061	Executive Office *Designee—Tom Newsome* *919/733-7061*

2004 Member	Title and Organization	Appointing Authority
Joe McKinney 25 Heritage Drive Asheville, NC 28806	Executive Director *Land of Sky Regional Council* 828/251-6622	Governor's Appointment *(Lead Regional Organization)*
Stephen Puckett 5528 Highway 55 Durham, NC 27713	Vice President *NC Society of Surveyors* 919/544-7717	Governor's Appointment
Bill Ross 1601 Mail Service Center Raleigh, NC 27699-1601	Secretary *Environment and Natural Resources* 919/715-4102	Executive Office
Gerald L. Ryan 3916 Sunset Ridge Road Raleigh, NC 27607	District Chief *US Geological Survey / Water Resources* 919/571-4044	Governor's Appointment *(Federal Government)*
JoAnne Sanford 4325 Mail Service Center Raleigh, NC 27699-4325	Chair *NC Public Utilities Commission* 919/733-4249	Executive Office *Designee—Mike Wilkins* *919/733-6060*
Gwynn Swinson 1301 Mail Service Center Raleigh, NC 27699-1301	Secretary *Administration* 919/807-2318	Executive Office *Designee—Carlton Myrick* *919/807-2341*
Lyndo Tippett 1501 Mail Service Center Raleigh, NC 27699-1501	Secretary *Transportation* 919/733-2520	Executive Office *Designee—Forrest Robson* *919/212-6001*
E. Norris Tolson 4501 Mail Service Center Raleigh, NC 27699-4501	Secretary *Revenue* 919/733-7211	Executive Office
Charlotte Turpin 405 Weather Green Drive Raleigh, NC 27615	Wake President *NC Association of Educators* 919/821-3128	Governor's Appointment
Mike Ward 301 N. Wilmington Street Raleigh, NC 27601	State Superintendent *Public Instruction* 919/807-3430	Executive Office *Designee—Derek Graham* *919/807-3571*
Chris Wease Anson County Courthouse Wadesboro, NC 28170	Anson County Manager *Anson County* 704/694-2796	Governor's Appointment *(County Government)*

Appendix G: NC Geographic Information Coordinating Council Establishing Authority and Precedent

The North Carolina Geographic Information Coordinating Council was established by Senate Bill 895 in August 2001 and was incorporated in the General Statutes as Article 76, §143-725 through 143-727.

The purpose of the Council is to develop policies regarding the utilization of geographic information, geographic information systems (GIS), and other related technologies. The Council is responsible for the following:

- Strategic planning,
- Resolution of policy and technology issues,
- Coordination, direction, and oversight of State, local, and private GIS efforts, and
- Advising the Governor, the General Assembly, and the Information Resource Management Commission (IRMC) as to needed directions, responsibilities, and funding regarding geographic information.

The Council is charged with statewide geographic information coordination and fosters cooperation among State, federal, tribal, and local government agencies; academic institutions; and the private sector in order to improve the quality, access, cost-effectiveness and utility of North Carolina's geographic information and to promote geographic information as a statewide strategic resource.

Precedent. Prior to the enactment of legislation, the North Carolina Geographic Information Coordinating Council existed through Executive Orders issued by Governor James G. Martin and Governor James B. Hunt Jr. Executive Order No. 147 by Governor James G. Martin first established the Council in July 1991. Governor James B. Hunt Jr. issued Executive Order No. 16 in May 1993 that remained in effect until 2001.

Staff to the Council. The Center for Geographic Information and Analysis (CGIA), located in the Department of Environment and Natural Resources and formerly attached to the Office of the Governor, staffs the Council. CGIA manages and distributes digital geographic information about North Carolina maintained by numerous State and local government agencies. It operates a service bureau, a statewide data clearinghouse, provides Internet access to State geographic information, and is responsible for web development and hosting of **NC OneMap**.